

**REMARKS****Status of the Claims**

Claims 115 to 136 are pending in the present application, and in the outstanding office action, all of the claims stand rejected as directed to non-statutory subject matter. By this amendment, Applicant cancels claims 115 to 136 and adds new claims 137 to 157 directed to a system. Upon entry of this amendment, claims 137 to 157 will be pending.

**Drawings**

The Examiner objected to the drawings because he stated that figures 18, A and B should read Fig. 18A and Fig. 18B. A Replacement Sheet containing Figs. 18A and 18B, with the changes directed by the Examiner, is attached hereto in compliance with 37 CFR 1.121(d).

**Interview Summary**

Applicants appreciate the Examiner's granting of a Telephonic Interview conducted on January 27, 2006. During that Interview, Applicants' representative argued pursuant to 35 U.S.C. § 101 and the prevailing case law, including *AT&T Corp. v. Excel Communications, Inc.*, 172 F.3d 1352, 50 USPQ2d 1447 (Fed. Cir. 1999), that methods implemented in software on a computer system that accepted input data, manipulated that data into a new form, and outputted that new form for use in a practical application (such as the marketing of products to customers) constituted patentable subject matter.

The Examiner disagreed. In particular, the Examiner asserted that if a person could sit at a computer and write a computer program that would carry out the steps of the method, then the method did not constitute patentable subject matter. In making his point, the Examiner suggested that the present application raised issues similar to those in *In re Grams*, 888 F.2d 835, 12 USPQ2d 1824 (Fed. Cir. 1989). However, as noted in the Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility (published in the November 22, 2005 Official Gazette), *In re Grams* is not helpful in analyzing claims under 35 U.S.C. § 101:

iv. Schrader and Grams distinguished

In the AT&T decision, the Federal Circuit stated that Schrader and Grams were not persuasive because the Schrader court and the Grams court relied upon the Freeman-Walter-Abele test instead of determining if the subject matter was applied in a practical manner to produce a useful, concrete and tangible result. The Federal Circuit stated:

In re Grams [888 F.2d 835, 12 USPQ2d 1824 (Fed. Cir. 1989)] is unhelpful because the panel in that case did not ascertain if the end result of the claimed process was useful, concrete, and tangible. Similarly, the court in In re Schrader [22 F.3d 290, 30 USPQ2d 1455 (Fed. Cir. 1994)] relied on the Freeman-Walter-Abele test for its analysis of the method claim involved. The court found neither a physical transformation nor any physical step in the claimed process aside from the entering of data into a record. See 22 F.3d at 294, 30 USPQ2d at 1458. The Schrader court likened the data-recording step to that of data-gathering and held that the claim was properly rejected as failing to define patentable subject matter. See id. at 294, 296, 30 USPQ2d at 1458-59. The focus of the court in Schrader was not on whether the mathematical algorithm was applied in a practical manner since it ended its inquiry before looking to see if a useful, concrete, tangible result ensued. Thus, in light of our recent understanding of the issue, the Schrader court's analysis is as unhelpful as that of In re Grams.

AT&T, 172 F.3d at 1360, 50 USPQ2d at 1453. **Accordingly, the Federal Circuit has made clear that Schrader and Grams are not helpful in analyzing claims under section 101.**

Still further, those same Guidelines include a recitation of all of the tests that are not appropriate tests for determining whether a claim defines patentable subject matter. A review of this list suggests that the Examiner's alternative bases for the 35 U.S.C. § 101 rejections are also wrong:

ANNEX III  
Improper Tests For  
Subject Matter Eligibility

As set forth in the patent eligible subject matter interim guidelines, a practical application of a 35 U.S.C. Sec. 101 judicial exception is claimed if the claimed invention physically transforms an article or physical object to a different state or thing, or if the claimed invention otherwise produces a useful, concrete, and tangible result. Therefore ***the following tests are not to be applied by examiners in determining whether the claimed invention is patent eligible subject matter:***

\* \* \*

b. Freeman-Walter-Abele Test

USPTO personnel should not rely on the Freeman-Walter-Abele test to determine whether a claimed invention is directed to statutory subject matter. The Federal Circuit questioned the continuing viability of the Freeman-Walter-Abele test, noting that "[a]fter Diehr and Chakrabarty, the Freeman-Walter-Abele test has little, if any, applicability to determining the presence of statutory subject matter." State Street, 149 F.3d at 1374, 47 USPQ2d at 1601.

The Federal Circuit further stated "after Diehr and Alappat, ***the mere fact that a claimed invention involves inputting numbers, calculating numbers, outputting numbers and storing numbers, in and of itself, would not render it nonstatutory . . .***" State Street, 149 F.3d at 1374, 47 USPQ2d at 1602 (citing In re Alappat, 33 F.3d at 1544, 31 USPQ2d at 1557). The Federal Circuit in an en banc decision pointed out that "the ultimate issue always has been whether the claim as a whole is drawn to statutory subject matter." Alappat, 33 F.3d at 1543 n. 21, 31 USPQ2d at 1557 n. 21.

\* \* \*

c. (i) The Mental Step Test

***If a claimed process is performed by a machine, it is immaterial whether some or all the steps could be carried out by the human mind.*** As stated in Musgrave, 431 F.2d at 893, 167 USPQ at 289-90: "***[w]e cannot agree with the board that these claims (all the steps of which can be carried out by the disclosed apparatus) are directed to non-statutory processes merely because some or all [emphasis added] the steps therein can also be carried out in or with the aid of the human mind*** or because it may be necessary for one performing the processes to think." Therefore, USPTO personnel should no longer rely on the mental step test to determine whether a claimed invention is directed to statutory subject matter. If all the steps of a claimed

process can be carried out in the human mind, examiners must determine whether the claimed process produces a useful, tangible, and concrete result, i.e., apply the practical application test set forth in State Street.

Nevertheless, the Interview closed with the Examiner suggesting that the invention described in the application may be claimed in a way that the Examiner would consider to be patentable subject matter if it were presented as a data processing system as described, for example on pages 28, 39, and 45 of the application. In this Amendment, Applicants attempt to comply with the Examiner's suggestion.

#### **Rejection of Claims 115-136 Under 35 U.S.C. 101**

The Examiner states that claims 115-136 are rejected under 35 U.S.C. 101 as being directed to non-statutory subject matter. Specifically, the Examiner states that:

The method steps of claim 115 are directed to mathematical algorithm steps that are directed to abstract idea and are discussed as follow:

- (A) step recites data gathering.
- (B) step recites changing the gathered data.
- (C) step recites mathematical algorithm.
- (D) step recites mathematical algorithm.
- (E) step recites mathematical algorithm because optimization is performed by a linear programming (see specification, page 35, lines 20-22 and page 44, lines 30 and 31).
- (F) step recites mathematical algorithm because optimization is performed by a linear programming (see specification, page 35, lines 20-22 and page 44, lines 30 and 31).

The Examiner does appear to find a concrete and tangible result in the Specification (that is, the method of claim 115 was applied in a practical way):

The specification does refer to a useful area such as marketing products.

However, the Examiner chose to exclude the method of claim 115 from the realm of the patentable because the Examiner perceived the method to encompass "mental steps."

However, the mathematical steps of the claimed invention constitute an abstract idea that fails to establish useful, concrete and tangible results. The method steps appear to be mental steps. Similar analysis applies to claims 116-136. Therefore, the claimed invention is directed to non-statutory subject matter and thus is non-statutory.

As noted above in the case law and Examination Guidelines, the “mental steps” approach is an improper test for determining subject matter patentability under 35 U.S.C. § 101. The Examiner goes on to assert:

Applicant’s arguments filed 9/26/05 have been fully considered but they are not persuasive.

Applicant argues at page 6, first paragraph where State street case is discussed. There is no indication in the specification that a device is performing the method steps of claim 1.

Applicant further argues at page 6, second paragraph that a tangible and concrete results are two sets of data have been input and grouped or regrouped in optimizing way. However the optimization way in the applicant specification is mathematical manipulation using liner programming (see specification, page 35, lines 20-22 and page 44, lines 30 and 31).

In fact, devices for performing the method steps are disclosed in Figures 1, 2 and 16, and is discussed in the application at pages 28, 39 and 45.

Claim 137 recites a system for determining a preferred segmentation for at least first and second sets of data. The system includes one or more input devices (see Figures 1 and 2, as well as page 39 of the application at lines 7 to 9) for inputting of the first and second sets of data, along with association values that can be used to relate one or more elements of the first data set with one or more elements of the second data set. A data processing system (page 39, lines 1 to 3, described also at page 28) includes a processor (Figures 1 and 2, page 39) is operable to modify the segmentation of each data set, calculate group association values based on the association values, and calculate an optimization metric based on the group association values. Where the desired level of optimization is not achieved in a first pass, the processor repeats these activities. Where the desired level of optimization is achieved, the newly optimized

segmentation for the first and second data sets is outputted.

Section 2106 of the Manual of Patent Examining Procedure provides:

The claimed invention as a whole must accomplish a practical application. That is, it must produce a "useful, concrete and tangible result." *State Street*, 149 F.3d at 1373, 47 USPQ2d at 1601-02. The purpose of this requirement is to limit patent protection to inventions that possess a certain level of "real world" value, as opposed to subject matter that represents nothing more than an idea or concept, or is simply a starting point for future investigation or research (*Brenner v. Manson*, 383 U.S. 519, 528-36, 148 USPQ 689, 693-96); *In re Ziegler*, 992, F.2d 1197, 1200-03, 26 USPQ2d 1600, 1603-06 (Fed. Cir. 1993)). Accordingly, a complete disclosure should contain some indication of the practical application for the claimed invention, i.e., why the applicant believes the claimed invention is useful.

The outputting of optimized segmentations for two related data sets is a tangible and concrete result (two sets of data have been input and grouped or regrouped in an optimized way before being outputted – now leading to two grouped data sets having an optimized segmentation). Practical applications for this technology are numerous. Dependent claims 138 to 143 further recite the deployment of the system of claim 137 to one specific exemplary practical application – associating customers with products. This application is described in the application at pages 17 to 18 and 30 to 34. Looking, for example, at claim 141, the first and second data sets represent customers and products, and the association value represent revenues. In this embodiment, raw transaction data (a customer, the products purchased by the customer, and money paid by the customer for the products) is input, and an optimized segmentation of customer and product groupings is output. Segmenting customers and products into groups based upon the optimization of revenue and/or profit is a practical application that marketing professionals would readily understand. In fact, the Examiner has already noted that “marketing products” is a “useful area.”

Section 2106 of the Manual of Patent Examining Procedure further provides:

It is essential that patent applicants obtain a prompt yet complete examination of their applications. Under the principles of compact prosecution, each claim

should be reviewed for compliance with every statutory requirement for patentability in the initial review of the application, even if one or more claims are found to be deficient with respect to some statutory requirement. Thus, Office personnel should state all reasons and bases for rejecting claims in the first Office action. Deficiencies should be explained clearly, particularly when they serve as a basis for a rejection. Whenever practicable, Office personnel should indicate how rejections may be overcome and how problems may be resolved. A failure to follow this approach can lead to unnecessary delays in the prosecution of the application.

Prior to focusing on specific statutory requirements, Office personnel must begin examination by determining what, precisely, the applicant has invented and is seeking to patent, and how the claims relate to and define that invention. (As the courts have repeatedly reminded the Office: "The goal is to answer the question 'What did applicants invent?' " *In re Abele*, 684 F.2d 902, 907, 214 USPQ 682, 687. Accord, e.g., *Arrhythmia Research Tech. v. Corazonix Corp.*, 958 F.2d 1053, 1059, 22 USPQ2d 1033, 1038 (Fed. Cir. 1992).) Consequently, Office personnel will no longer begin examination by determining if a claim recites a "mathematical algorithm." Rather they will review the complete specification, including the detailed description of the invention, any specific embodiments that have been disclosed, the claims and any specific, substantial, and credible utilities that have been asserted for the invention.

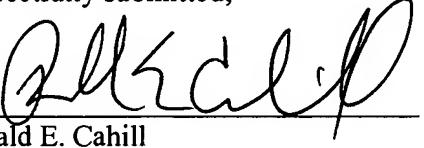
Applicants, while disagreeing with the Examiner's conclusion that the claims "recite [a] mathematical algorithm without [a] concrete and tangible result directed to a practical application," have amended the claims and reduced their number in an effort to clarify the scope of the claimed invention. No other rejections or objections have been made; in particular, no material prior art has been cited. Accordingly, Applicants believe that claims 137 to 157 are in condition for allowance.

**CONCLUSION**

In view of the above amendment, Applicant believes the pending application is in condition for allowance. If the Examiner believes that further communication would expedite the prosecution of this application, Applicants encourage the Examiner to contact the undersigned attorney.

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Respectfully submitted,

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**AMENDMENTS TO THE DRAWINGS**

The attached Replacement Sheets of drawings for FIGS. 18A and 18B have been clarified to appear as "FIG. 18A" and "FIG. 18B" rather than "A" and "B" as directed by the Examiner. No substantive changes or new matter has been added.

Attachment: 1 Replacement Sheet (Figs. 18A and 18B)